



Presentation & Demo

August 7, 2018

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Topics

- Introduction
- Architecture
- PerfTechPro zAnalytics® for z/OS features facilitate:
 - Performance and Capacity Reporting
 - Performance Problem Resolution
 - LPAR Configuration Analysis
 - Workload Analysis
 - Job Analysis
 - DASD IO Subsystem Analysis
 - Processor Cache Analysis (SMF 113s)
 - Performance/Capacity Planning – Correlation Analysis
 - Capacity Planning – Forecasting Tool
 - Capacity Planning - CPU Sizing Tool
 - Capacity Planning - CPU Modeling Tool



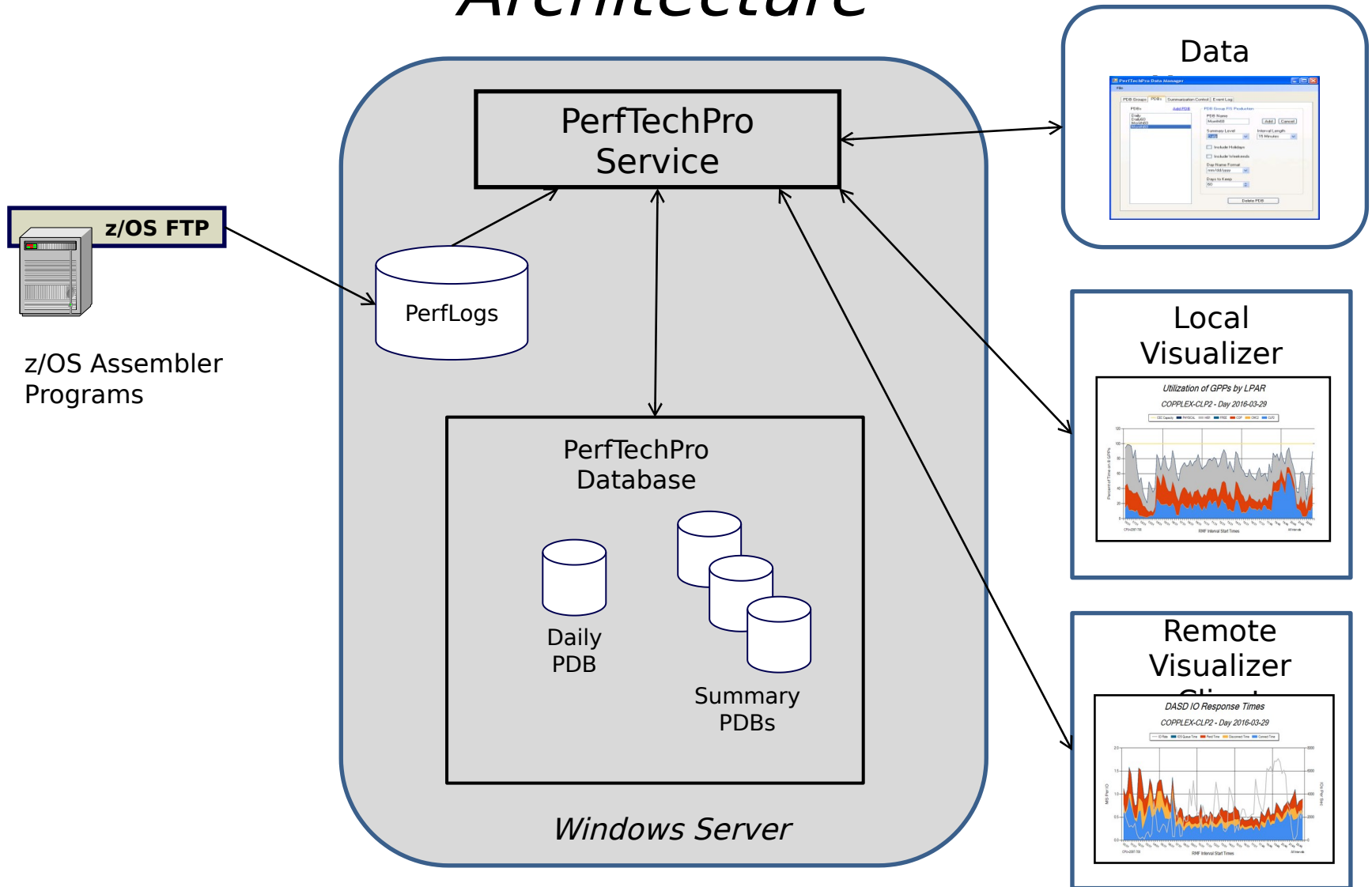
EFFECTIVE, AFFORDABLE TOOLS FOR IT CAPACITY MANAGEMENT

Introduction

PerfTechPro is a cost effective software product that:

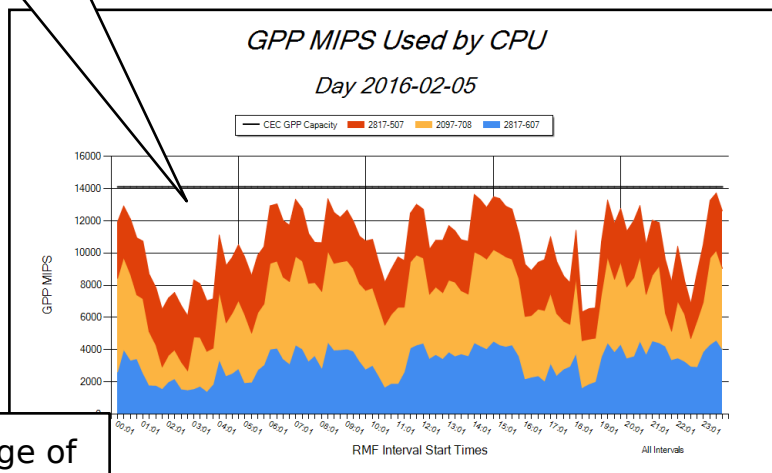
- Gathers RMF and SMF data from z/OS systems
- Stores that data in a relational database on a Windows server
- Provides access to the data, tools and analysis through a local client or multiple remote clients on the network
- Contains a complete scripting language so the user can automate all PerfTechPro

Architecture

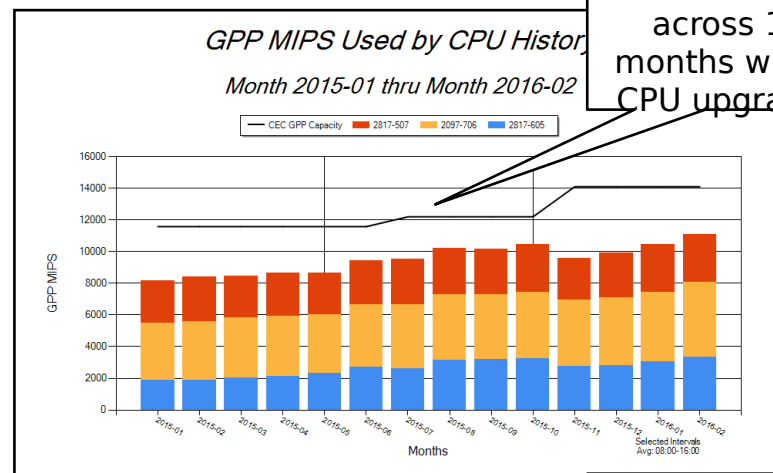


Performance and Capacity Reporting

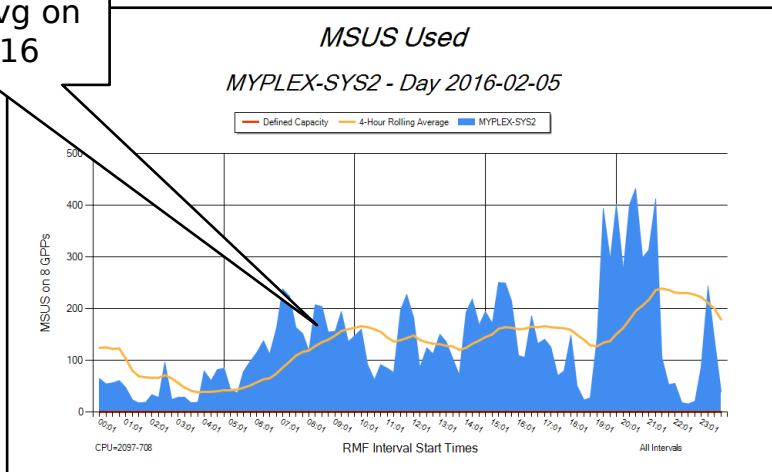
Enterprise GPP MIPS usage on 3 CPUs on 2/5/2016



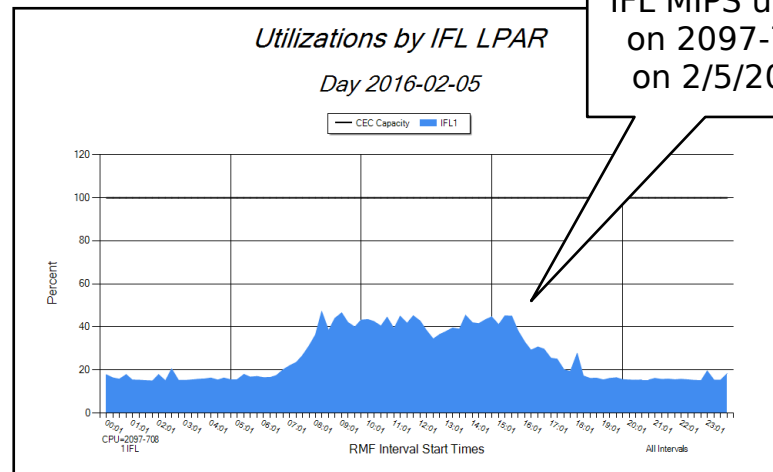
Enterprise GPP MIPS usage across 14 months with 2 CPU upgrades



MSU usage of SYS2 with 4Hr Rolling Avg on 2/5/2016

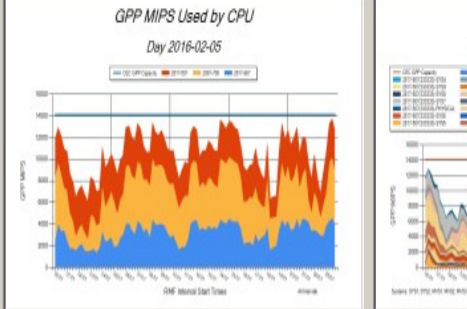


IFL MIPS usage on 2097-708 on 2/5/2016



4 Up Window

2 Up + 1
Up Window

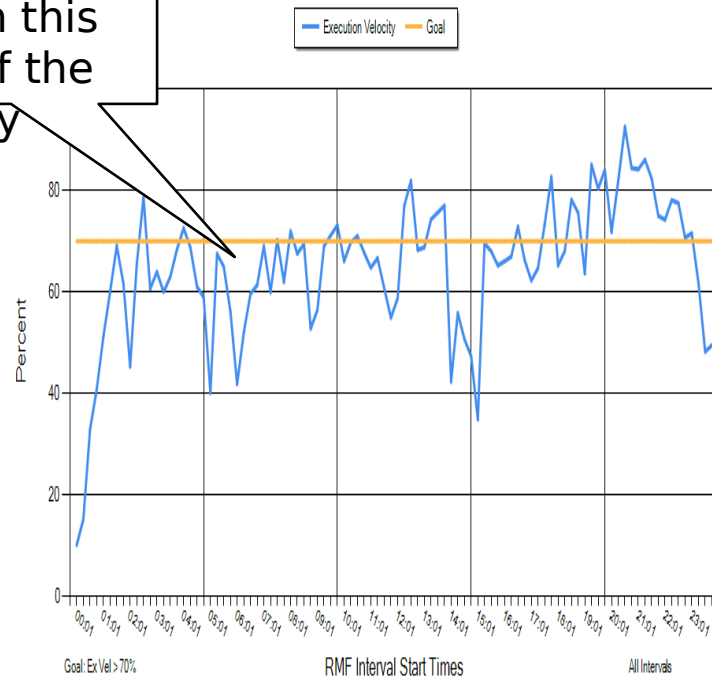


Performance Problem Resolution

PROD-1 is missing its goal in this part of the day

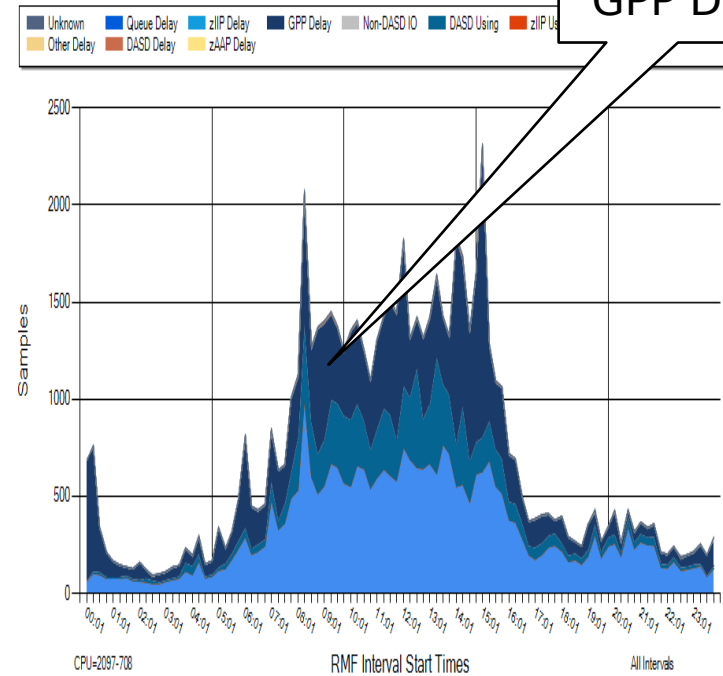
Goal Attainment for SCP=PROD-1

MYPLEX-SYS2 - Day 2016-02-05



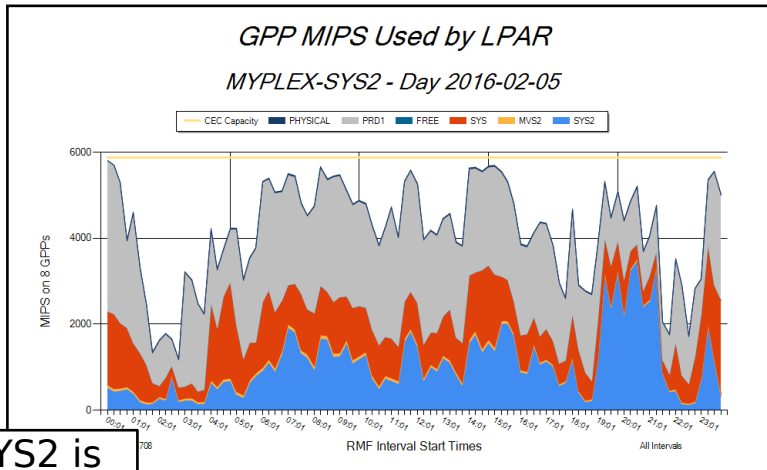
Non-Idle Samples for SCP=PROD-1

MYPLEX-SYS2 - Day 2016-02-05

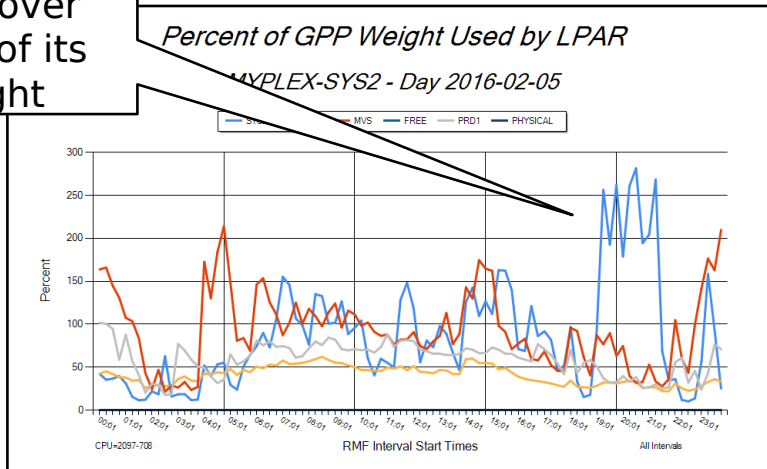


Problem is GPP Delay

LPAR Configuration Analysis



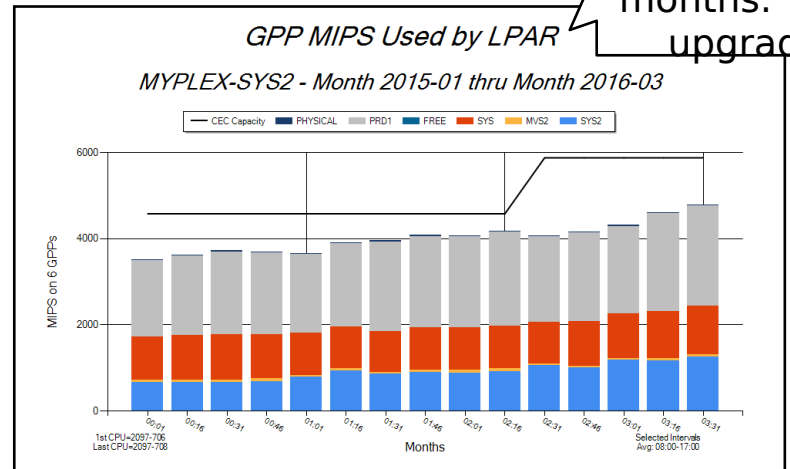
LPAR SYS2 is using over 200% of its weight



z/OS LPAR Definitions

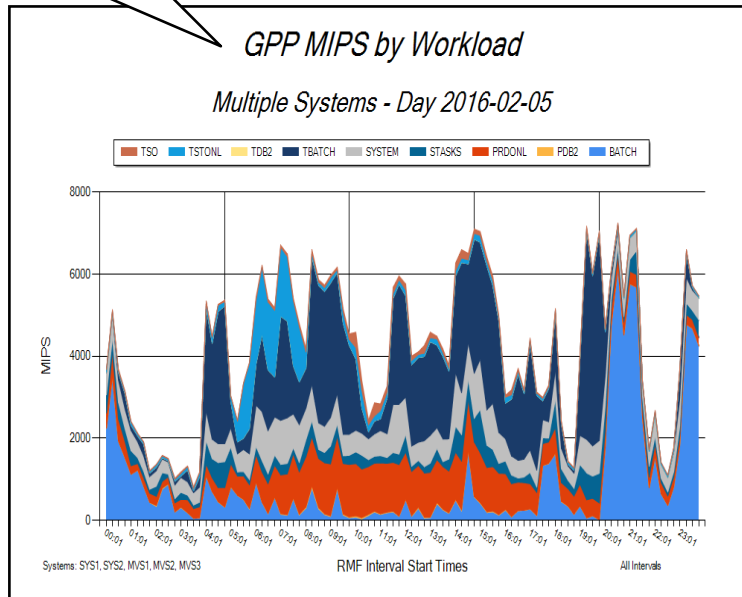
LPAR Name	Primary	Defined Capacity	CS MBs	ES MBs	GPP Weight	GP LPs Online	GP LPs Ded.	zAAP Weight	zAAP LPs Online	zAAP LPs Ded.	zIIP Weight	zIIP LPs Online	zIIP LPs Ded.
SYS2	Yes	0	18432	0	124	6	0	0	0	0	0	0	0
MVS1	No	0	2560	0	13	2	0	0	0	0	0	0	0
MVS2	No	0	15360	0	105	4	0	0	0	0	0	0	0
FREE	No	0	3072	0	1	5	0	0	0	0	0	0	0
MVS3	No	425	20480	0	345	6	0	0	0	0	0	0	0
PHYSICAL	No	0	0	0	0	8	0	0	0	0	0	0	0

LPAR MIPS usage over last 14 months. Note upgrade.

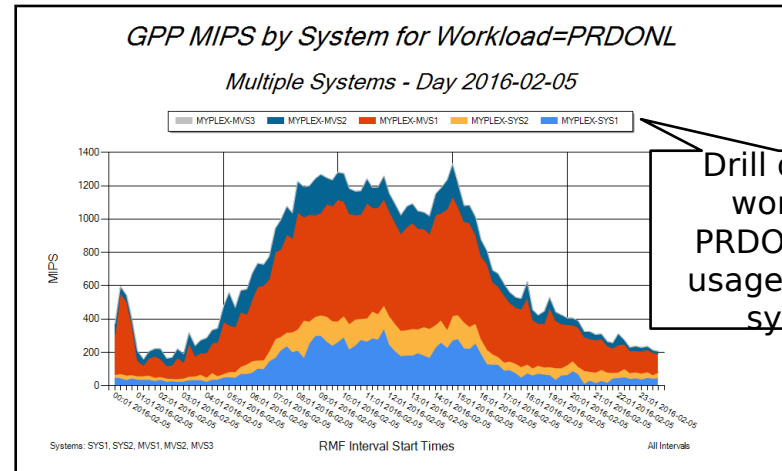


Workload Analysis

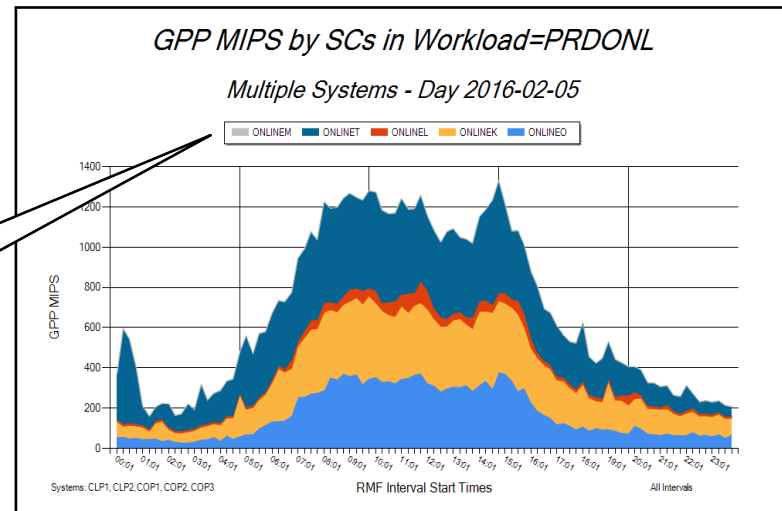
Look at MIPS usage by workload across 5 systems



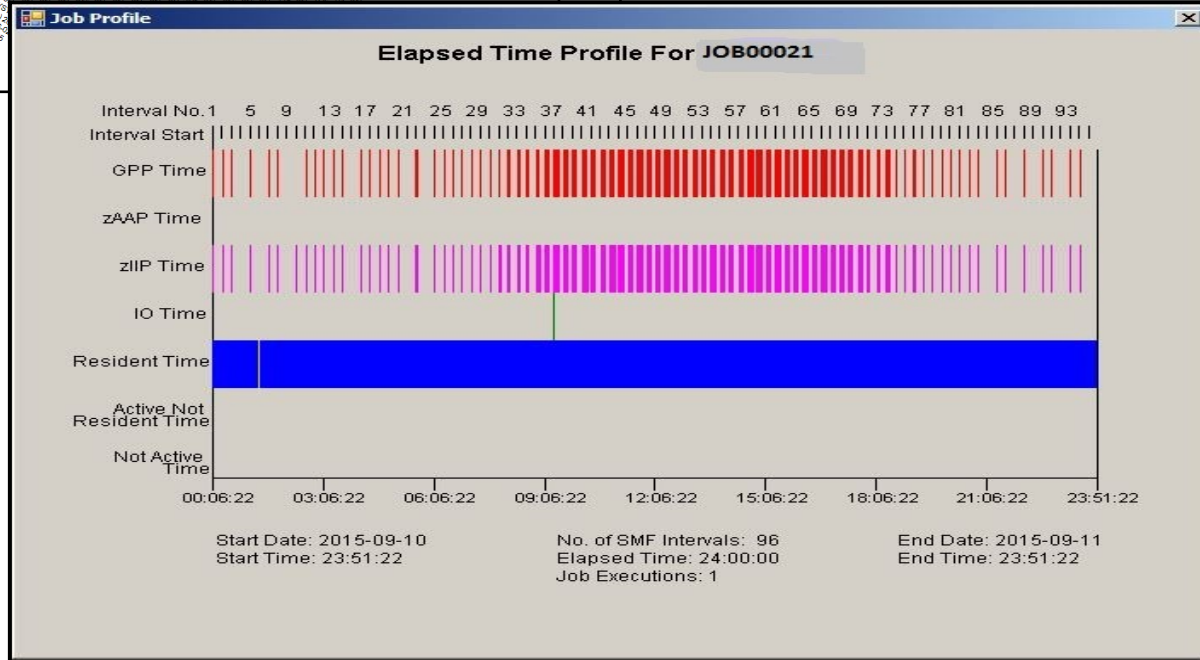
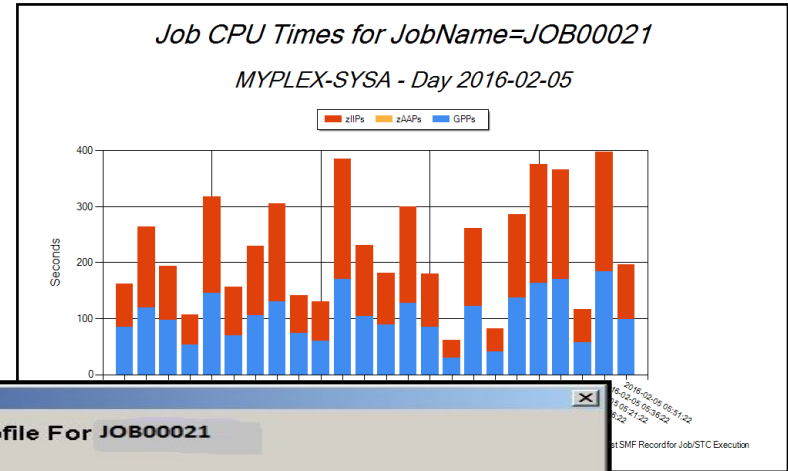
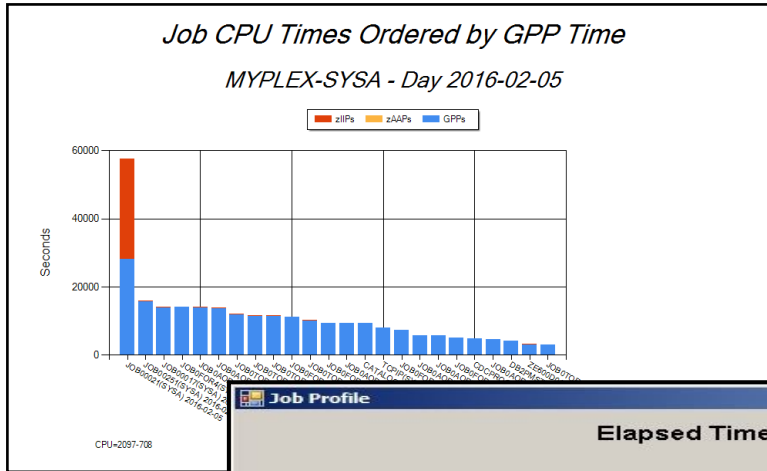
Drill down to workload PRDONL MIPS usage for each of its SCs over 5 systems



Drill down to workload PRDONL MIPS usage on each system



Job Analysis

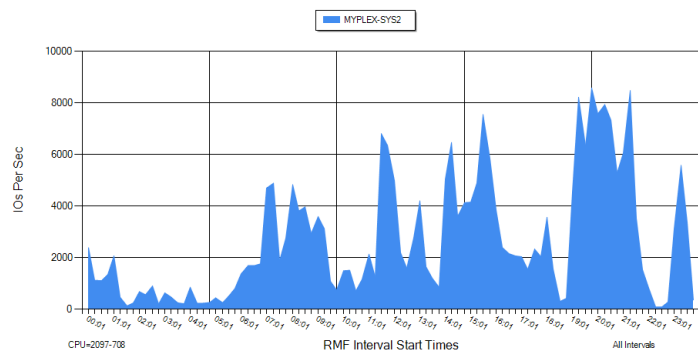


Complete view of
DASD subsystem
performance with
IO rates, cache
hit %, response
times and cache
transfers

DASD IO Subsystem Analysis

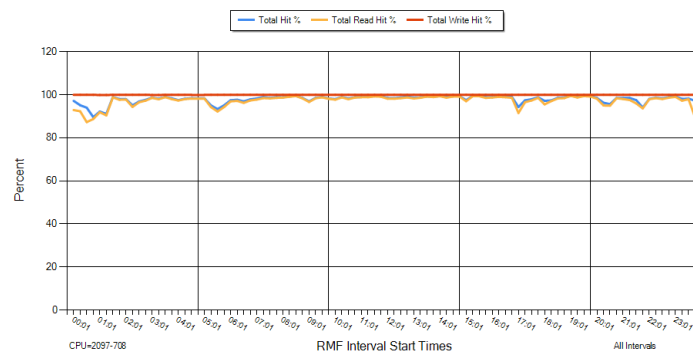
DASD IO Rates

MYPLEX-SYS2 - Day 2016-02-05



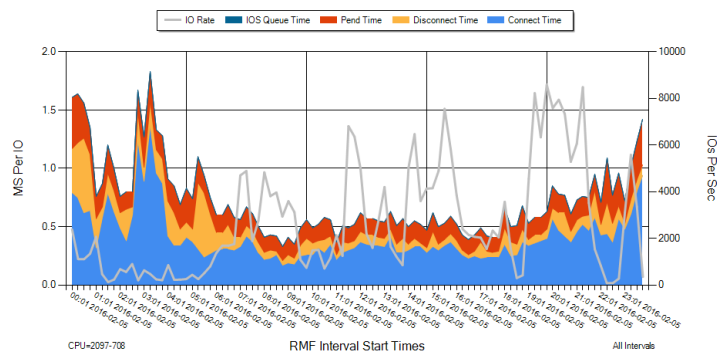
DASD Total Hit Percentages

MYPLEX-SYS2 - Day 2016-02-05



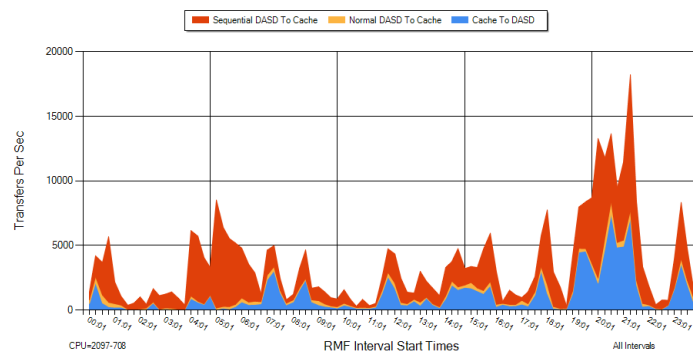
DASD IO Response Times

MYPLEX-SYS2 - Day 2016-02-05



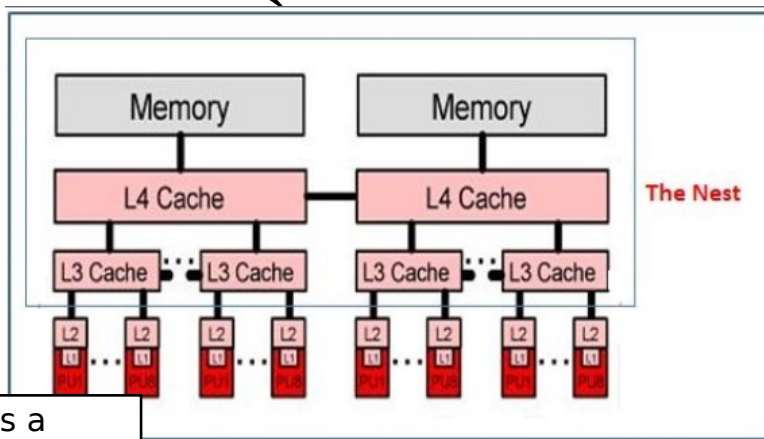
DASD Cache Transfers

MYPLEX-SYS - Day 2016-02-05



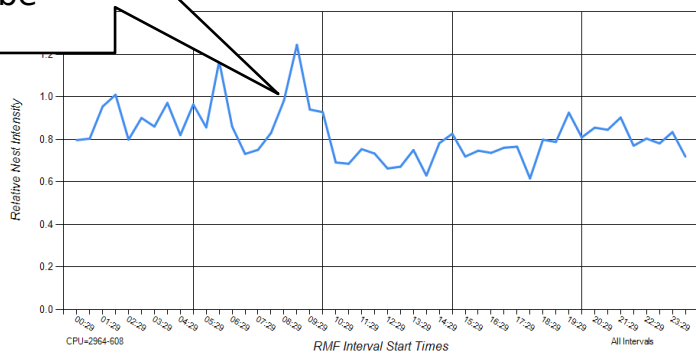
Processor Cache architecture for Z13/z13s CPUs

Processor Cache Analysis



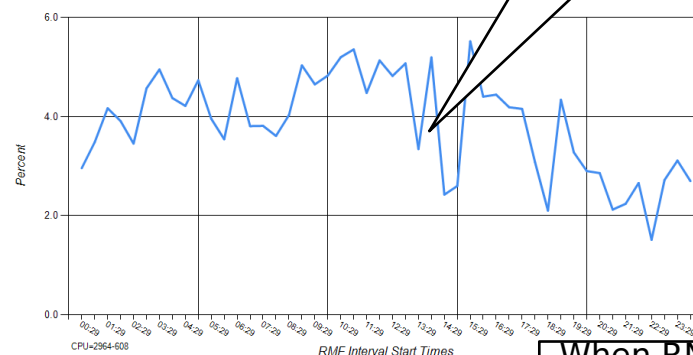
RNI is a dimensionless measure of the occupancy in 'The Nest'. It should be < 1

Relative Nest Intensity
COPPLEX-CLP2 - 4/7/17 FRI



Percent Level 1 Miss

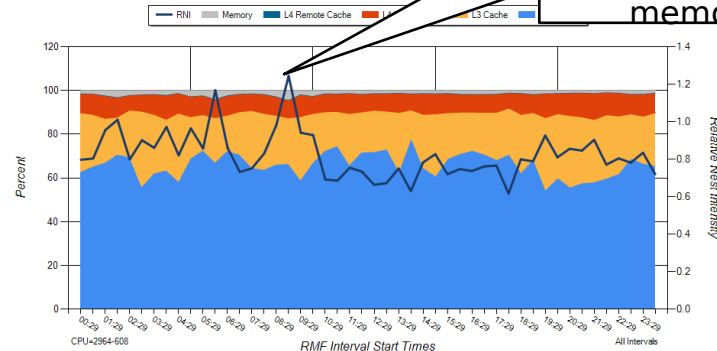
COPPLEX-CLP2 - 4/7/17 FRI



% of instructions not sourced from Level 1 cache (L1 misses)

L1 Miss Instruction Sourcing Profile

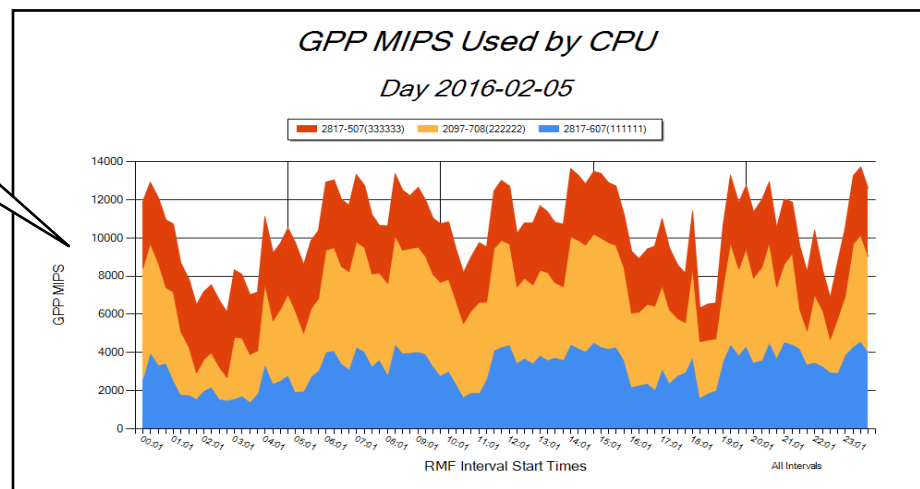
COPPLEX-CLP2 - 4/7/17 FRI



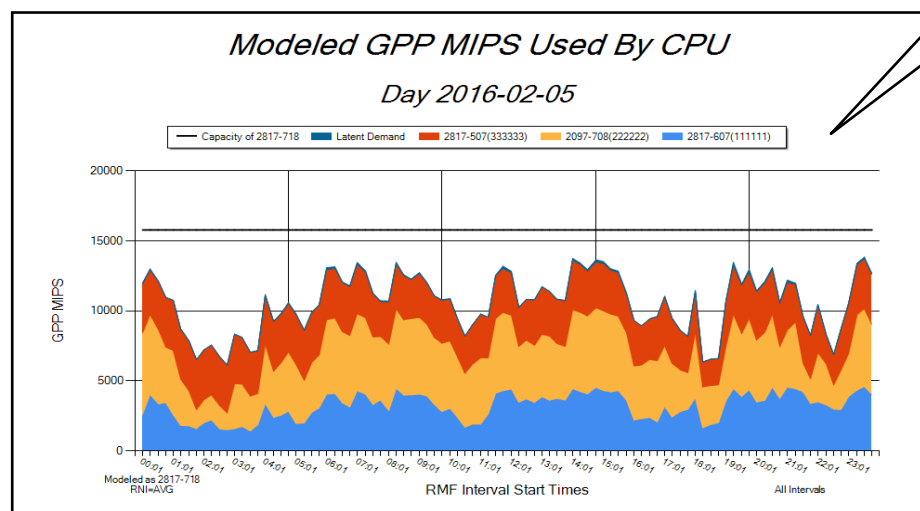
When RNI is high it is because in this case more L1 misses are sourced from memory

Question: *Capacity Planning - CPU Sizing*

What CPU
could
accommodate
all of this
work?



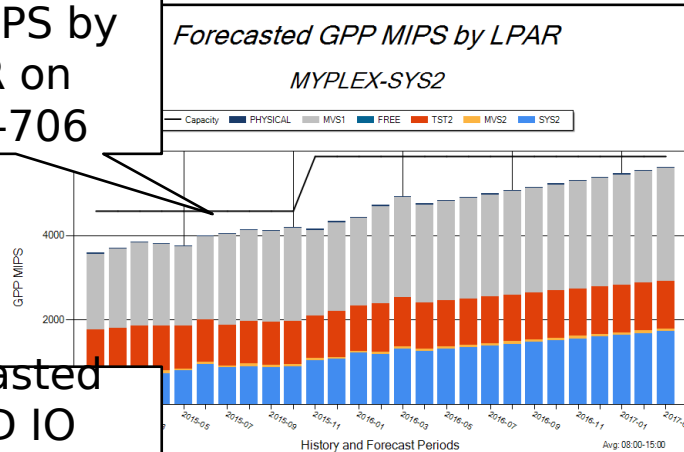
Answer:
A 2817-718
with AVG¹ RNI.



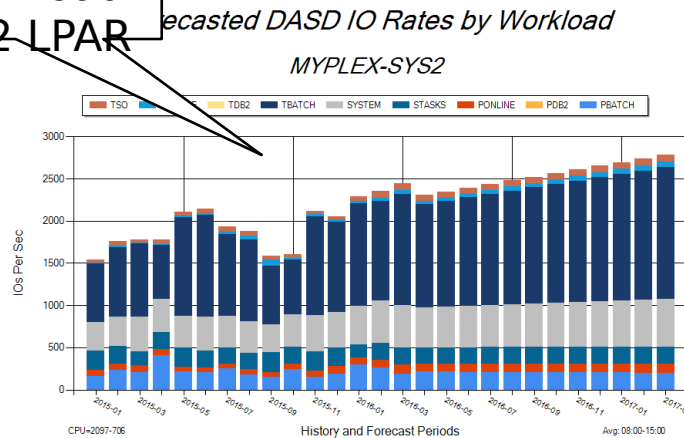
*Note 1. IBM
publishes 3 sets of
RITRs for LOW, AVG
and HIGH RNIs*

Capacity Planning - Forecasting Demand

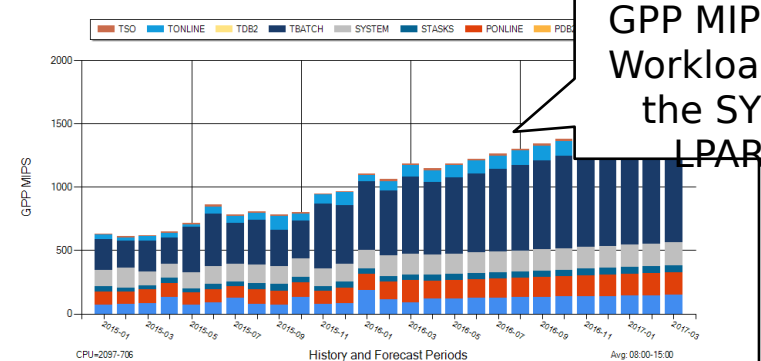
Forecasted
GPP MIPS by
LPAR on
2097-706



Forecasted
DASD IO
demand
by Workload
on SYS2 LPAR

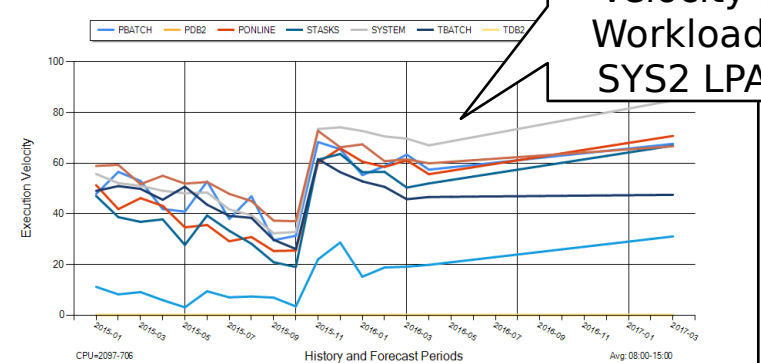


Forecasted GPP MIPS by Workload
MYPLEX-SYS2



Forecasted
GPP MIPS by
Workload on
the SYS2
LPAR

Forecasted Execution Velocity by Workload
MYPLEX-SYS2



Forecasted
Execution
Velocity by
Workload in
SYS2 LPAR.

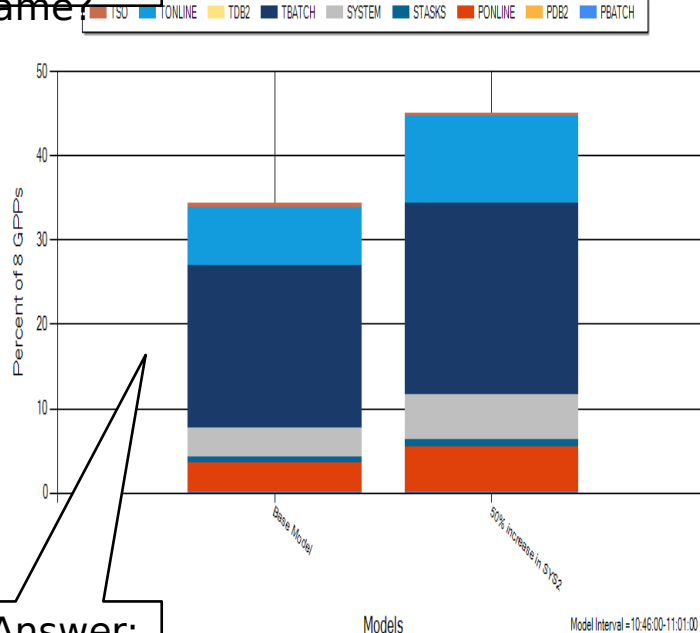
Capacity Planning - CPU Modeling

Question: What would happen if SYS2 work increased by 50% in 10AM to 11AM

timeframe?

GPP Utilizations By Workload in LPAR=SYS2

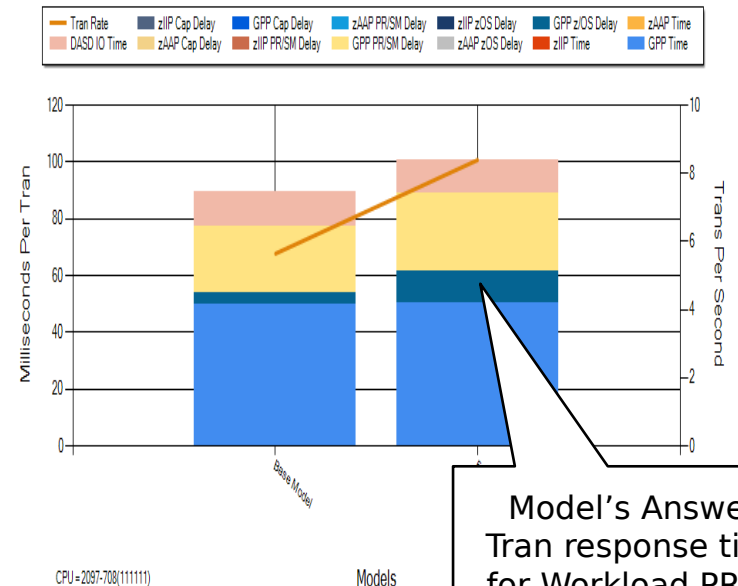
2097-708 - 2016-03-11



Model's Answer: CPU Utilization would increase.

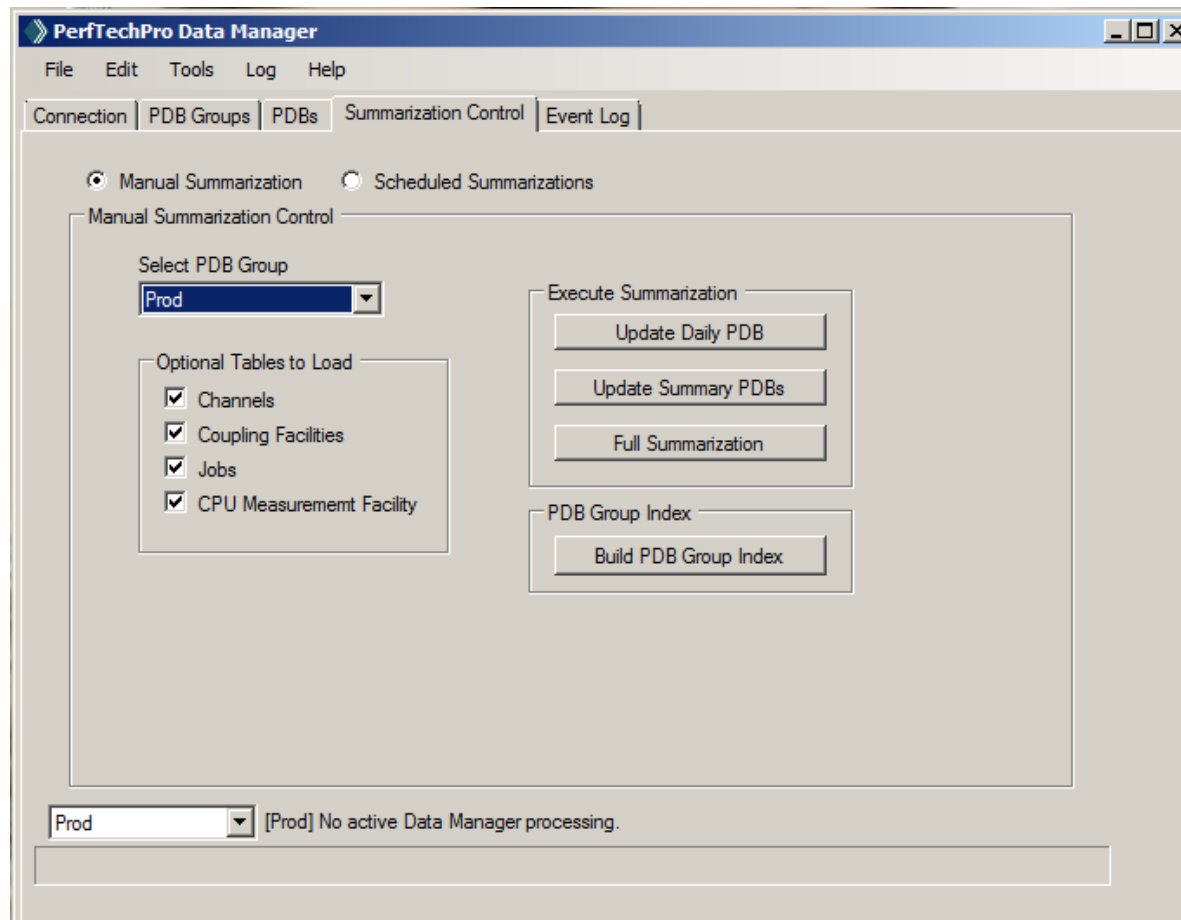
Modeled Transaction Response Time Profile for Workload=PROD in LPAR=SYS2

2097-708 - 2016-03-11



Model's Answer: Tran response time for Workload PROD would increase due to CPU queueing.

Data Manager



Visualizer

